

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended): An optical transmission system including a plurality of layers, the system comprising:

an optical transponder having a digital wrapper, the optical transponder operates to execute maintenance of a received signal in the optical transponder;

the optical transponder further including:

a digital wrapper interrupt processor for processing an interrupt signal generated from the digital wrapper according to monitoring of the received signal;

a defect and maintenance signal detector for determining whether or not the received signal has a defect and determining whether or not the received signal requires maintenance under the control of the digital wrapper interrupt processor;

a defect and maintenance signal processor for, when a defect is detected by the defect and maintenance signal detector or is cancelled, processing the defect; and

a digital wrapper controller for controlling the digital wrapper according to the processing result of the defect and maintenance signal processor,

wherein the plurality of layers includes ~~at least one among~~ an optical transport unit layer, an optical data unit layer, and an optical ~~payload-unit~~channel layer, and the digital wrapper interrupt processor sets a defect mask for each layer and processes an interrupt of each layer when the defect mask ~~therefor~~ is true, and the defect and maintenance signal detector processes the defect mask of another layer to be false so as to ignore processing of a generated interrupt in the case that a defect of the optical channel layer is detected.

Claim 2 (Previously Presented): The optical transmission system as claimed in claim 1, wherein, when the digital wrapper interrupt processor detects an interrupt with respect to the received signal from the digital wrapper and determines that the received signal has a defect, the digital wrapper interrupt processor calls the defect and maintenance signal detector to allow it to detect the defect.

Claim 3 (Canceled)

Claim 4 (Previously Presented): The optical transmission system as claimed in claim 1, wherein a signal that is received and transmitted by the optical transponder has a structure that maps a client signal to a payload and includes an error correction code and an overhead.

Claim 5 (Previously Presented): The optical transmission system as claimed in claim 4, further comprising:

- a transmitter information providing part for providing information required to be delivered to a receiving side through the overhead of the transmitted signal; and

- a receiver information providing part for providing an expected value of information required to be received through the overhead.

Claim 6 (Previously Presented): The optical transmission system as claimed in claim 1, further comprising:

- a remote information display for displaying presence/absence of a defect and the quantity of BIP-errors according to the result of the defect and maintenance signal processor;

- a defect correlation reporting part for finding the cause of the defect to report it; and

- a performance monitoring part for monitoring a performance value of the received signal to report it.

Claim 7 (Currently Amended): A method comprising:

- operating an optical transponder, the optical transponder operates to perform maintenance of a received signal in an optical transmission system including multiple layers, the optical transponder having a digital wrapper, the optical transponder further operates by:

- calling a processor for processing an interrupt when the interrupt is generated from the digital wrapper according to monitoring of the received signal;

- the called processor detecting what defect is generated in the received signal and detecting whether or not the received signal requires maintenance;

- performing defect processing in the case that a defect is detected by the called processor or is cancelled; and

controlling the digital wrapper according to the defect and maintenance processing result,
wherein the plurality of layers includes at least one among an optical transport unit layer, an optical data unit layer, and an optical ~~payload unit~~channel layer, and defect and maintenance functions of the digital wrapper controller only operate when an interrupt signal is generated by the digital wrapper, and the calling the processor comprises: setting a defect mask for each layer and processing an interrupt of each layer when the defect mask ~~therefor~~ is true, and the called processor detecting comprises processing the defect mask of another layer to be false so as to ignore processing of a generated interrupt in the case that a defect of the optical channel layer is detected.

Claim 8 (Canceled)

Claim 9 (Previously Presented): The method as claimed in claim 7, wherein, in the case that a defect of an OCH channel is detected/cancelled, comprises: processing the defect mask of another layer to be false so as to ignore processing of a generated interrupt.

Claim 10 (Previously Presented): The method as claimed in claim 7, further comprising:
displaying presence/absence of a defect and the quantity of BIP-errors;
finding the cause of the defect to report it; and
monitoring a performance value of the received signal to report it.